

## CLAIM AMENDMENTS

1           1. (Original) Apparatus for filling bags (1) with loose  
2 material (2), comprising a tube (210) for supplying the material  
3 (2), substantially coaxial with the said bag (1), characterized in  
4 that said tube (210) is able to move from a position with the  
5 supply mouth (210a) outside that bag to a position with the supply  
6 mouth (210a) inside the bag (1) and arranged at a height  
7 substantially coinciding with the bottom (1b) of the bag (1) where  
8 filling is started, and vice versa.

1           2. (Original) Apparatus according to Claim 1,  
2 characterized in that it comprises means (112) for retaining the  
3 bag (1) at a fixed height.

1           3, (original) Apparatus according to Claim 1,  
2 characterized in that the top end of the tube (210) is integral  
3 with a hopper (211) containing the product (2).

1           4. (Original) Apparatus according to Claim 1,  
2 characterized in that it comprises means for displaceably actuating  
3 it in both directions along a vertical axis (Z).

1           5. (Original) Apparatus according to Claim 4,  
2 characterized in that said actuating means (200) consist of a motor

3        (231) connected, by means of transmission means, to a frame (232)  
4        integral with the hopper (211).

1            6. (Original) Apparatus according to Claim 5,  
2        characterized in that said means (230) for displaceably actuating  
3        the frame (232) are of the variable/controllable speed type.

1            7. (Original) Apparatus according to Claim 1,  
2        characterized in that it comprises means for weighing the product  
3        (2).

1            8. (Original) Apparatus according to Claim 7,  
2        characterized in that said means for weighing the product (2) are  
3        arranged upstream of the said supply tube (210).

1            9. (Original) Apparatus according to Claim 1,  
2        characterized in that it comprises means (500) for weighing the bag  
3        (1) during filling.

1            10. (Original) Apparatus according to Claim 9,  
2        characterized in that said weighing means (500) consist of load  
3        sensors (501) connected to the bag retaining means (112).

1            11. (Original) Apparatus according to Claim 1,  
2        characterized in that the mouth (210a) supplying the product (2) is

3       equipped with rotating plates (210b) able to be arranged  
4       transversely with respect to the mouth (210a) of the tube, so as to  
5       cause closing thereof, and, parallel thereto, so as to cause  
6       opening thereof.

1           12. (Original) Apparatus according to Claim 1,  
2       characterized in that it comprises means (240) for measuring the  
3       volume of the product (2) to be introduced into the bag (1).

1           13. (Original) Apparatus according to Claim 12,  
2       characterized in that said volume measuring means consist of a  
3       feeder screw (240) coaxially arranged inside the tube (210) and  
4       able to convey measured quantities of product (2) from the hopper  
5       (211) to the bottom (lb) of the bag.

1           14. (Original) Apparatus according to Claim 13,  
2       characterized in that said feeder screw (240) is associated with  
3       variable speed actuating means with a system for control thereof.

1           15. (Original) Apparatus according to Claim 1,  
2       characterized in that it is associated with air and dust suction  
3       means (300).

1           16. (Original) Apparatus according to Claim 15,  
2       characterized in that said suction means consist of longitudinal  
3       ducts (310) arranged in a diametral position with respect to the

4       tube (210) and extending substantially along the whole axial length  
5       of the said tube.

1           17. (Original) Apparatus according to Claim 1,  
2       characterized in that it comprises deaeration means consisting of a  
3       plurality of pipes (1311), the bottom end part (1311a) of which is  
4       hinged with pins (1311b) able to allow expansion thereof in the  
5       transverse direction, by an amount corresponding to the width of  
6       the bag.

1           18. (Original) Machine for filling bags (1) with loose  
2       material (2), comprising at least one filling station (R) where  
3       there is a filling apparatus (200) comprising a tube (210) for  
4       supplying the material, substantially coaxial with the said bag  
5       (1), characterized in that said tube (210) is able to move from a  
6       rest position with the supply mouth (210a) outside the bag (1) to a  
7       position with the supply mouth (210a) inside the bag and at a  
8       height substantially corresponding to that of the bottom (1b) of  
9       the bag (1) where filling is started, and vice versa.

1           19. (Original) Machine according to Claim 18,  
2       characterized in that it comprises means (112) for retaining the  
3       bag (1) at a fixed height.

1           20. (Original) Machine according to Claim 18,  
2 characterized in that the top end of the tube (210) is integral  
3 with a hopper (211) containing the product (2).

1           21. (Original) Machine according to Claim 18,  
2 characterized in that it comprises means (230) for displaceably  
3 actuating the filling apparatus in both directions along a vertical  
4 axis (Z).

1           22. (Original) Machine according to Claim 21,  
2 characterized in that said means (230) for displaceably actuating  
3 the filling apparatus consist of a motor (231) connected, by means  
4 of transmission means, to a frame (232) integral with the hopper  
5 (211).

1           23. (Original) Machine according to Claim 21,  
2 characterized in that said means (230) for actuating the frame  
3 (232) are of the variable/controllable speed type.

1           24. (Original) Machine according to Claim 18,  
2 characterized in that it comprises means for weighing the product  
3 (2).

1           25. (Original) Machine according to Claim 24,  
2 characterized in that said means for weighing the product (2) are  
3 arranged upstream of the said supply tube (210).

1           26. (Original) Machine according to Claim 18,  
2         characterized in that it comprises means (500) for weighing the bag  
3         (1) during filling.

1           27. (Original) Machine according to Claim 26,  
2         characterized in that said weighing means (500) consist of load  
3         sensors (501) connected to the bag retaining means (112).

1           28. (Original) Machine according to Claim 24,  
2         characterized in that the mouth (210a) of the tube (210) supplying  
3         the product (2) is equipped with rotating plates (210b) able to be  
4         arranged transversely with respect to the mouth (210a) of the tube,  
5         so as to cause closing thereof, and parallel thereto, so as to  
6         cause opening thereof.

1           29. (Original) Machine according to Claim 18,  
2         characterized in that it comprises means (240) for measuring the  
3         volume of the product (2) to be introduced into the bag (1).

1           30. (Original) Machine according to Claim 29,  
2         characterized in that said volume measuring means consist of a  
3         feeder screw (240) coaxially arranged inside the supply tube (210)  
4         and able to convey measured quantities of product (2) from the  
5         hopper (211) to the bottom (1b) of the bag.

1           31. (Original) Machine according to Claim 30,  
2 characterized in that said feeder screw (240) is associated with  
3 variable speed actuating means with a system for control thereof.

1           32. (Original) Machine according to Claim 18,  
2 characterized in that it is associated with air and dust suction  
3 means (300).

1           33. (Original) Machine according to Claim 32,  
2 characterized in that said suction means consist of longitudinal  
3 ducts (310) arranged in a diametral position with respect to  
4 the supply tube (210) and extending substantially over the whole  
5 axial length of the said tube.

1           34. (Original) Machine according to Claim 18,  
2 characterized in that it comprises deaeration means consisting of a  
3 plurality of pipes (1311), the bottom end part (1311a) of which is  
4 hinged with pins (1311b) able to allow expansion thereof in the  
5 transverse direction, by an amount corresponding to the width of  
6 the bag.

1           35. (Original) Machine according to Claim 18,  
2 characterized in that it is a forming/filling machine.

1               36. (Original) Machine according to Claim 35,  
2 characterized in that it comprises at least one station (F) for  
3 forming the bag (1) from a tubular material (101) unwound from a  
4 reel (101a), at least one station (R) for filling the bag with the  
5 material supplied by the filling apparatus (200), and at least one  
6 station (S) for sealing the mouth (1a) of the bag.

1               37. (Original) Machine according to Claim 35,  
2 characterized in that it comprises means (110) for conveying the  
3 bag from the forming station (F) to the filling station (R) and to  
4 the sealing station (S).

1               38. (Original) Machine according to Claim 37,  
2 characterized in that said conveying means consist of a slide (110)  
3 displaceably actuated with an alternating outward and return  
4 movement and equipped with facing pairs. of grippers (110a) for  
5 gripping the bag along the opposite vertical edges thereof.

1               39. (Original) Machine according to Claim 38,  
2 characterized in that said slide is able to impart to the grippers  
3 (110a) movements in the direction transverse to the direction of  
4 feeding of the bag (1) so as to cause opening of its mouth (1a)  
5 during travel from the forming station (F) to the filling station  
6 (R) and closing thereof during travel from the station (R) to the  
7 sealing station (S).

1               40. (Original) Machine according to Claim 38,  
2 characterized in that the displacement movements of said slide  
3 (110) are at a fixed height.

1               41. (Currently amended) Method for A method of filling a  
2 bag [[(1)]] with loose material (2), characterized in that it  
3 comprises the following steps: comprising the steps of:

4               providing — preparation of an apparatus [[(200)]] for  
5 filling bags [[(1)]] with a loose material products (2);

6               providing — preparation of a programmed quantity of said  
7 material [[(2)]] to be introduced into the bag;

8               [[—]] conveying of a bag [[(1)]] into a position  
9 substantially coaxial with and underneath the filling apparatus  
10 [[(200)]];

11               [[—]] opening a mouth of the bag [[(1)]] and retainig  
12 thereof the bag in said coaxial position and at a fixed height;

13               — introduction of introducing the apparatus (200) inside  
14 into an interior of the bag [[(1)]] as far as a predefined height  
15 in the vicinity of [[the]] a bottom (1b) thereof of the bag;

16               - start of the first bag filling step starting to fill  
17 the bag from the apparatus at said predefined height;

18               — simultaneous return movement upwards of simultaneously  
19 returning the apparatus [[(200)]] , upwardly while continuing to  
20 fill the bag with said material from said apparatus towards the  
21 mouth [[(1a)]] of the bag [[(1)]] ;

22           —termination of terminating the filling [[step]] at a  
23 predefined height of the preparation inside the bag [[(1)]] ; and  
24           —extraction of extracting the filling apparatus from  
25 the bag [[(1)]].

26         42. (Currently amended) The method Method according to  
27 Claim 41 , characterized in that wherein the conveying of the bag  
28 [(1)] is performed at a fixed height.

1         43. (Currently amended) The method Method according to  
2 Claim 41 , characterized in that the wherein a speed of  
3 introduction/extraction of the filling apparatus [(200)]  
4 into/from the bag is controlled to be different from [[the]] a  
5 speed of [[its]] return of the apparatus upwardly upward movement  
6 simultaneously with the filling [[step]].

1         44. (Currently amended) The method Method according to  
2 Claim 41 , characterized in that wherein the filling is performed  
3 by means of gravity.

1         45. (Currently amended) The method Method according to  
2 Claim 41 , characterized in that wherein the quantity of product  
3 (2) material to be inserted introduced into the bag is prepared  
4 using a net weight technique.

1               46. (Currently amended) The method Method according to  
2 ~~Claim 41, characterized in that the wherein a quantity of said~~  
3 ~~material product (2) to be inserted introduced into the bag is~~  
4 prepared using a gross weight technique.

1               47. (Currently amended) The method Method according to  
2 ~~Claim 41, characterized in that wherein the filling is of the~~  
3 volumetric type.

1               48. (Currently amended) The method Method according to  
2 ~~Claim 47, characterized in that wherein the filling is performed~~  
3 using feeder screw means (240) coaxially arranged inside the  
4 filling apparatus [(200)].

1               49. (Currently amended) The method Method according to  
2 ~~Claim 41, characterized in that wherein the filling operation~~  
3 comprises the following steps:

4               [[-]] start of a first bag filling step of the  
5 volumetric type;

6               [[-]] simultaneous return movement upwards of the  
7 apparatus [(200)] towards the mouth [(la)] of the bag [(1)];

8               [[-]] termination of the said first volumetric filling  
9 step;

10              [[-]] start of a second filling step using the gross  
11 weight technique until the final programmed weight of the bag is  
12 reached; and

13                [[-]] extraction of the filling apparatus from the bag  
14        [[(1)]] .

1                50. (Currently amended) The method Method according to  
2        Claim 49 , characterized in that wherein the speed of supply of the  
3        product (2) material during the first filling step is much greater  
4        than the supply speed during the second filling step.

1                51. (Currently amended) The method Method according to  
2        Claim 49 , characterized in that wherein the first volumetric  
3        filling step is performed using feeder screw means.

1                52. (Currently amended) The method Method according to  
2        Claim 41 , characterized in that it which comprises applying dust  
3        and air suction during the bag filling step.

1                53. (Currently amended) The method Method according to  
2        Claim 41 , characterized in that wherein conveying of the bag  
3        [[(1)]] underneath the filling apparatus [[(200)]] is performed by  
4        means of conveying means forming part of an automatic machine.

1                54. (Currently amended) The method Method according to  
2        Claim 53 , characterized in that wherein said conveying means  
3        consist of a slide [[(110)]] .

1           55. (Currently amended) The method Method according to  
2 Claim 54 , ~~characterized in that~~ wherein said slide [[(110)]] is  
3 displaceably actuated with an alternating outward and return  
4 movement and is equipped with pairs of facing grippers {110a} for  
5 gripping the bag along its opposite vertical edges.

1           56. (Currently amended) The method Method according to  
2 Claim 54 , ~~characterized in that~~ wherein said slide [[(110)]] is  
3 able to impart movements in a direction transverse to the direction  
4 of feeding of the bag [[(1)]], so as to cause opening of [[its]]  
5 said mouth [[(1a)]] during travel from the forming station [[(F)]]  
6 to the filling station [[(R)]] and closing thereof during travel  
7 from the station [[(R)]] to the sealing station [[(S)]].

1           57. (Currently amended) The method Method according to  
2 Claim 53 , ~~characterized in that~~ said automatic machine is a  
3 forming/filling machine.